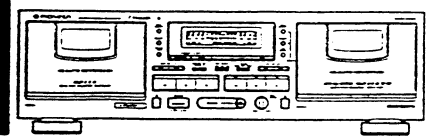
PIONEER®
The Art of Entertainment

Service Manual



ORDER NO.
ARP2747

STEREO DOUBLE CASSETTE DECK

CT-W620R

CT-W620R HAS THE FOLLOWING:

Type	Power Requirement	Remarks
HEM	AC220 – 230V, 230 – 240V (switchable) *	
HEMXJ	AC220 – 230V, 230 – 240V (switchable) *	
HB	AC220 – 230V, 230 – 240V (switchable) *	
HBXJ	AC220 – 230V, 230 – 240V (switchable) *	
SD	AC110V, 120 – 127V, 220V, 240V (switchable)	

* Change the connection of the power transformer's primary wiring.

- **This manual is applicable to CT-W620R/HEM, HEMXJ, HBXJ and SD.**
- **For HEMXJ, HBXJ and SD types, refer to page 28.**

CONTENTS

1. EXPLODED VIEWS, PACKING AND PARTS LIST ·2
2. BLOCK DIAGRAM ·····8
3. PCB PARTS LIST ·····9
4. SCHEMATIC DIAGRAM·····12
5. PCB CONNECTION DIAGRAM·····15
6. ADJUSTMENTS ·····23
7. FL INFORMATION·····27
8. FOR HEMXJ, HBXJ AND SD TYPES·····28
9. PANEL FACILITIES·····30
10. SPECIFICATIONS ·····31

1. EXPLODED VIEWS, PACKING AND PARTS LIST

1.1 EXTERIOR AND PACKING

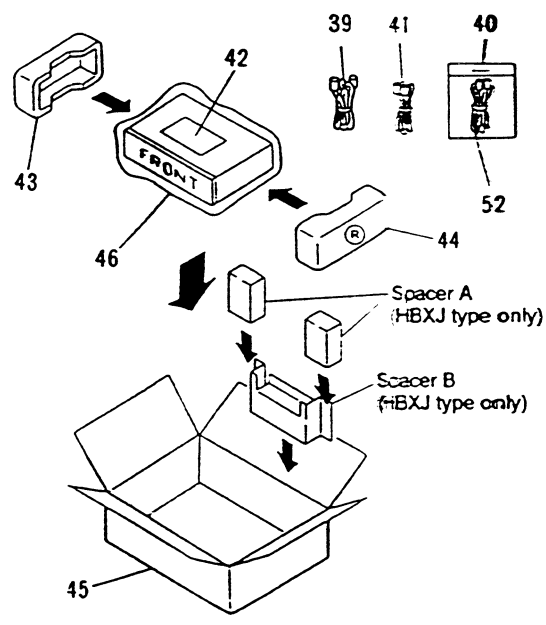
NOTES:

- Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.
- The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- Parts marked by "⊙" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.

Parts List

Mark	No.	Description	Part No.
	1	Main unit	RWZ2837
	2	Display unit	RWZ2838
NSP	3	Transformer 1 unit	RWZ2927
NSP	4	Transformer 2 unit	RWZ2839
⚠	5	Strain relief	CM – 22B
⚠	6	FU1001, FU1002 Fuse (T1.6A)	REK1024
⚠	7	AC power cord	PDG1003
	8	Lead card 35P	RDD1271
⚠	9	Power transformer	RTT1224
⊙	10	Mechanism 1 unit (DECK I)	RYM1198
⊙	11	Mechanism 2 unit (DECK II)	RYM1201
	12	.....	
NSP	13	PCB spacer	PNY – 404
	14	Insulator	PNW1912
	15	Door spring L	RBH1304
	16	Door spring R	RBH1305
	17	Half pressure spring	RBK1004
NSP	18	FL spacer	REB1171
	19	Damper assembly	REC1005
	20	.....	
NSP	21	Main chassis	RNB1089
NSP	22	Transformer shield plate	RNE1451
NSP	23	Mechanism shield plate	RNE1519
	24	Cord clamper	RNH – 184
	25	Balance knob	RAC1705
	26	Eject knob L	RAC1778
	27	Eject knob R	RAC1779
	28	Power knob	RAC1780
	29	Control knob	RAC1782
	30	REC knob B	RAC1788
	31	FL lens	RAH2186
	32	Front panel	RAH2180
	33	Door pocket L	RAH2183
	34	Door pocket R	RAH2178
	35	Door lens	RAH2187
	36	Name plate	RAM1007
	37	Remain display paper	REE – 113
NSP	38	Rear panel	RNA1659
	39	Connection cord with mini plug	PDE – 319
	40	Connection cord assembly	RDE1002
	41	Control cord	RDE1030
	42	Operating instructions (English/French/German/Italian/Dutch/Swedish/Spanish/Portuguese)	RRE1075
	43	Pad	RHA1115
	44	Pad R	RHA1116
	45	Packing case	RHG1431
	46	Sheet	RHX – 034
	47	Screw	BBZ20P040FMC
	48	Screw	BBZ30P060FMC
	49	Screw	BBZ30P080FZK
	50	Screw	BBZ30P150FCU
	51	Binder	REC – 371
	52	Connection cord with plug	RDE – 010
	53	Slide knob	REA1078
	54	Screw	BBZ30P060FMC
	55	Bonnet	REA1077
	56	PB. DOLBY unit	RWX1085
NSP	57	LED unit	RWZ2931
	58	LED lens	PNW2019
	59	Knob spacer	REC1195

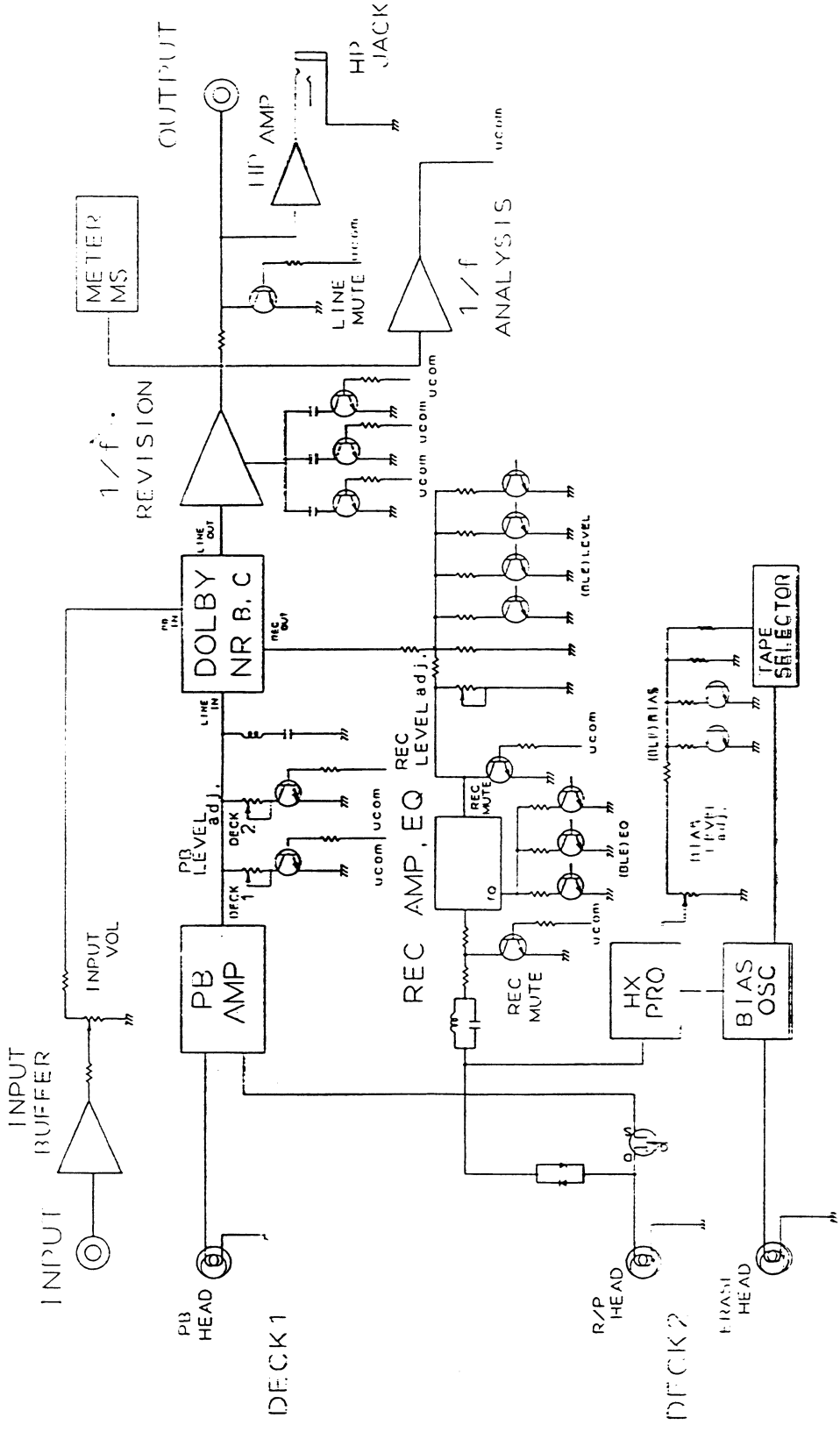
Packing



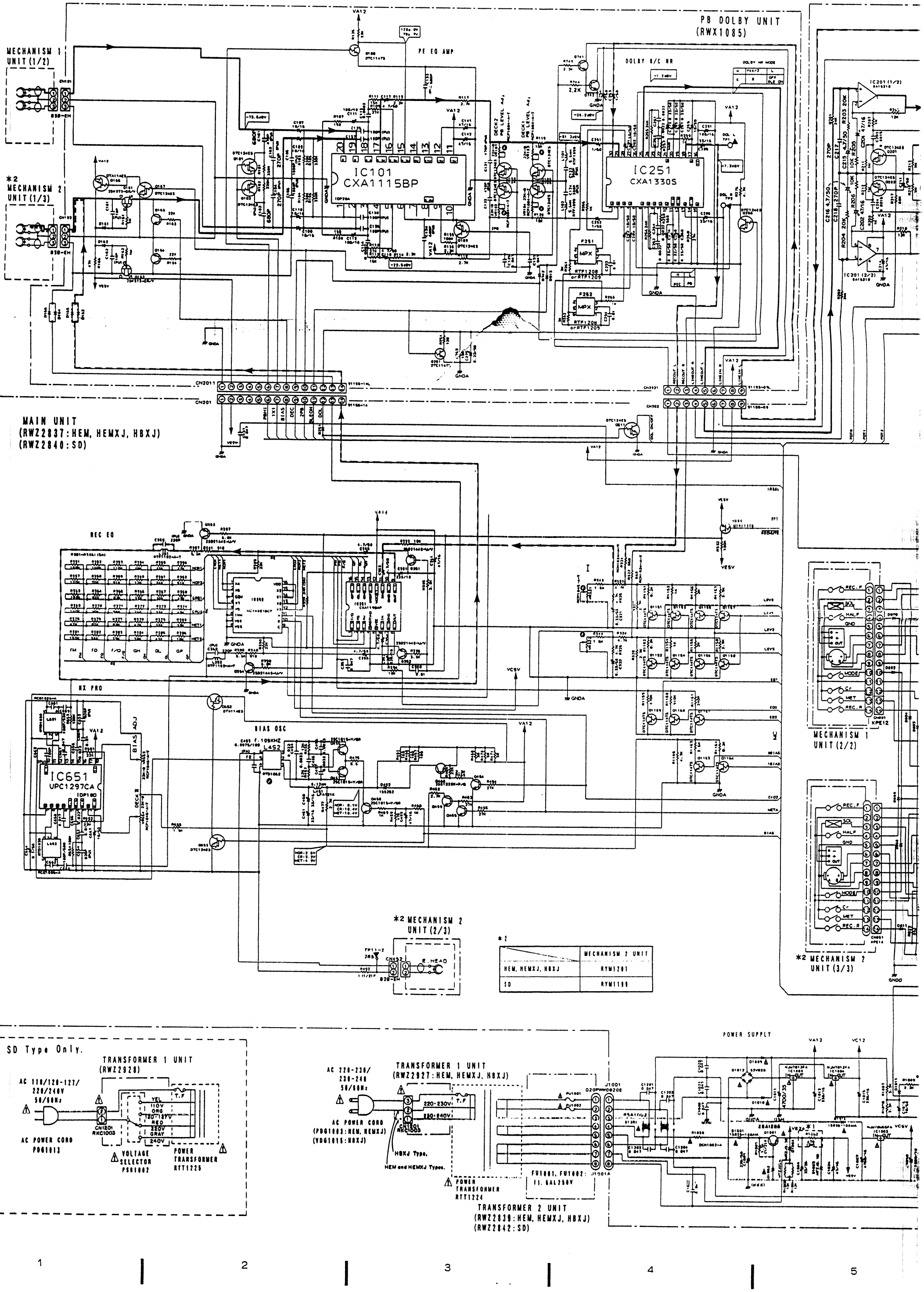
Parts List

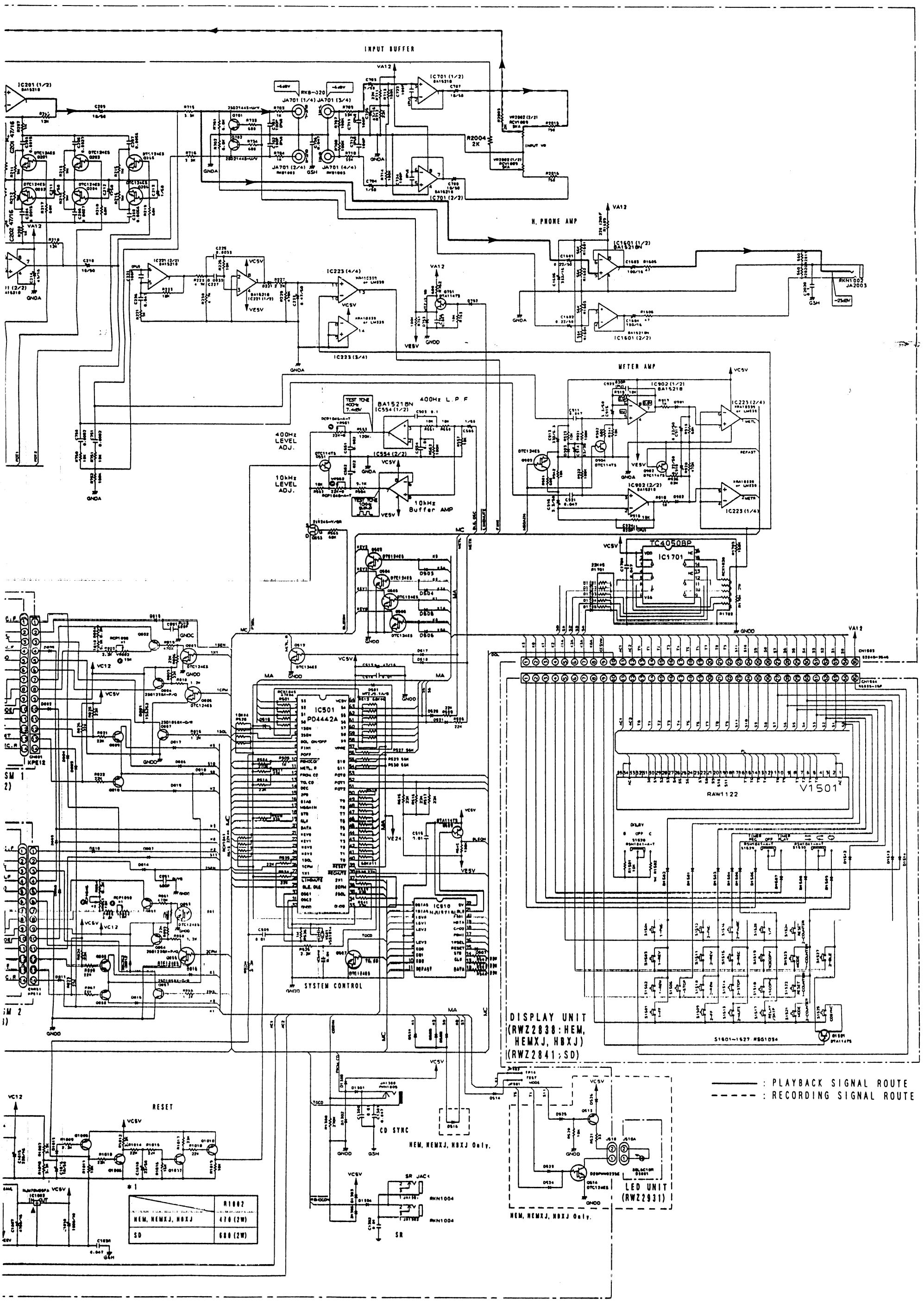
Mark	No.	Description	Part No.
	1	ASS'Y HOLDER HEAD (Mechanism 2 unit)	RXA1477
	1	ASS'Y HOLDER HEAD (Mechanism 1 unit)	RXA1500
	2	FLAME HEAD	RNK1715
	3	LEVER HEAD	RNK1716
	4	SPRING AZIMUTH	RBK1006
	5	ASS'Y ARM ASSIST	RXA1401
	6	GEAR ARM HEAD	RNK1717
	7	SPRING CASSETTE	RBK1039
	8	EJECT LOCK	RNK1718
	9	CAP REEL	RNK1719
	10	ASS'Y PINCH ARM L	RXA1403
	11	CHASSIS HEAD	RNE1437
	12	ASS'Y PINCH ARM R	RXA1404
	13	ARM PLAY L	RNK1866
	14	GEAR PLAY	RNK1867
	15	ARM PLAY R	RNK1868
	16	CHASSIS OS.	RXA1411
	17	ASS'Y SUB REEL L	RXA1407
⚠	18	SOLENOID	RXP1020
	19	WIRE	RDC1006
	20	ARM RVS	RNK1721
	21	GEAR FF	RNK1723
	22	ASS'Y ARM FR	RXA1412
	23	ASS'Y PULLEY FR	RXA1413
	24	BELT FR	REB1158
	25	METAL	RNG1048
	26	ASS'Y FLYWHEEL L (Mechanism 2 unit)	RXA1476
	26	ASS'Y FLYWHEEL L (Mechanism 1 unit)	RXA1423
	27	METAL	RNG1005
	28	ARM BRAKE	RNK1724
	29	ASS'Y SUB REEL R	RXA1408
	30	ARM TRIGGER	RNK1722
	31	GEAR CAM	RNK1725
	32	METAL	RNG1049
	33	FLYWHEEL R (Mechanism 2 unit)	RXA1415
	33	ASS'Y FLYWHEEL R (Mechanism 1 unit)	RXA1424
	34	METAL	RNG1004
	35	WIRE (14P) (Mechanism 2 unit)	RDD1217
	35	WIRE (12P) (Mechanism 1 unit)	RDD1249
NSP	36	HOLDER WIRE	RNK1683
	37	P.C. BOARD	RNP1347
	38	SWITCH MODE	RSN1022
	39	SWITCH (LEAF)	RSN1019
	40	HALL IC.	DN6851A
	41	BRACKET FW	RNE1438
	42	GEAR FWR (Mechanism 2 unit)	RNK1733
	43	ASS'Y MOTOR (Mechanism 2 unit)	RXM1061
	43	ASS'Y MOTOR (Mechanism 1 unit)	RXM1060
NSP	44	WIRE	RDD1012
	45	BELT MAIN (Mechanism 1 unit)	REB1159
	45	BELT MAIN (Mechanism 2 unit)	REB1162
	46	P.C. BOARD	RNP1348
	47	HOUSING (Mechanism 2 unit)	RKP1397
	47	HOUSING (Mechanism 1 unit)	RKP1396
	48	EJECT LEVER L (Mechanism 2 unit)	RNK1831
	48	EJECT LEVER R (Mechanism 1 unit)	RNK1811
	49	COLLAR	RNK1704
	50	WIRE HEAD (Mechanism 2 unit)	RKP1399
	50	WIRE HEAD (Mechanism 1 unit)	RKP1398
	61	SPRING	RBH1282
	62	SPRING	RBH1283
	63	SPRING	RBH1284
	64	SPRING	RBH1286
	65	SPRING	RBH1288
	66	SPRING	RBH1291
	67	SPRING	RBH1285
	68	SPRING	RBH1287
	69	SPRING	RBH1289
	70	SPRING	RBH1290
	71	SPRING	RBH1292
	72	SPRING	RBH1061
	73	SPRING	RBH1325
	74	SPRING (L) (Mechanism 2 unit)	RBH1319
	74	SPRING (R) (Mechanism 1 unit)	RBH1320
	81	SCREW	RBA1023
	82	SCREW	RBA1027
	83	SCREW	RBA1030
	84	SCREW	PCZ20P040FMC
	85	SCREW	RBA1093
	86	SCREW	RBA1094
	87	SCREW	RBA1086
	88	SCREW	RBA1095
	89	WASHER	RBF1046
	90	WASHER	WA26D047D013

2. BLOCK DIAGRAM



4. SCHEMATIC DIAGRAM




INPUT BUFFER
H. PHONE AMP
METER AMP
400Hz L.P.F
400Hz LEVEL ADJ.
10kHz LEVEL ADJ.
10kHz Buffer AMP
SYSTEM CONTROL
CD SYNC
RESET
DISPLAY UNIT (RWZ2838:HEM, HEMXJ, HBXJ) (RWZ2841:SD)
LED UNIT (RWZ2931)
HEM, HEMXJ, HBXJ Only.
IC501 PD4442A
IC1701 TC4050BP
V1501 RAW1122
: PLAYBACK SIGNAL ROUTE
: RECORDING SIGNAL ROUTE
*1
R1002
HEM, HEMXJ, HBXJ 470 (2W)
SD 680 (2W)

Mark	No.	Description	Part No.
	Q332, Q509, Q751		DTA114TS
	Q551, Q902, Q904, Q1151-Q1161, Q1163, Q1164		DTC114TS
	Q201-Q206, Q503-Q507, Q511, Q512, Q514, Q653, Q803, Q805, Q853, Q855, Q903		DTC124ES
⚠	D1001, D1006		1SR35-100A
	D452, D801, D812		1SS252
	D221, D251, D503-D509, D511, D514-D518, D520, D521, D523-D526, D752, D802-D811, D813-D819, D901-D903, D1011, D1300-D1305, D1701-D1705		1SS254
⚠	D1009, D1010		1SS254
⚠	D1002		MTZJ22A
	D1004		MTZJ3.3B
	D753		MTZJ3.9B
	D1003		MTZJ5.1B
	D501		MTZJ9.1A
⚠	D1012		S2VB20
SWITCHES			
⚠	S1201		RSA1002
COILS			
	L451		LFA121K
	L651, L652(L=4.6mH, Q=25, F=105KHz)		RTD1030
	L452(F=105K)		RTD1062
	L351, L352(L=103J)		RTF1102
CAPACITORS			
	C659, C660		CCCSL101E50
	C211-C213, C555, C703, C704		CEAS010M50
	C209, C210, C667, C707, C708, C1016		CEAS100M50
	C1603, C1604		CEAS101M1E
	C1010		CEAS102M1C
	C1018		CEAS220M50
	C351, C352		CEAS221M1C
	C1001		CEAS221M50
	C451, C458		CEAS330M1E
	C914, C1004		CEAS330M50
	C1013, C1015, C1605		CEAS331M1E
	C913		CEAS331M6D3
	C915, C916		CEAS3R3M50
	C201, C202, C214, C361, C459, C513, C705, C1024		CEAS470M1E
	C1007		CEAS472M1E
	C215, C216, C353-C356		CEAS4R7M50
	C664		CEASR10M50
	C917, C918, C1601, C1602		CEASR22M50
	C321, C322		CEASR33M50
	C233		CEASR47M50
	C203, C204		CFTXA152J50
	C454		CFTXA223J50
	C205, C206		CFTXA272J50
	C207, C208		CFTXA562J50
	C1009		CGCYF104Z25
	C554, C651, C652		CGCYX103K25
	C503		CGCYX104K25
	C552, C655, C656		CGCYX223K25
	C225, C227, C455-C457		CGCYX332K25
	C236, C657, C658		CGCYX473K25
	C750, C751		CGCYX822K25
	C551		CGCYX823K25
	C358, C509, C510, C514, C515, C1300, C1302		CKCYF103Z50
	C127, C357, C706, C756, C911, C921, C1008, C1020-C1022, C1030, C1201-C1204, C1301, C1701, C2020		CKCYF473Z50
	C221, C663, C701, C702, C711, C712, C723, C724		CKPUYB101K50
	C359, C360		CKPUYB221K50
	C217, C218		CKPUYB271K50
	C801, C851		CKPUYB681K50
	C653, C654, C923, C924		CKPUYB821K50
	C453		CQPA752J100
	C661, C662(C=470P, V(DC)=, 500)		RCG1006
	C1011(C=4700, VDC=35V)		RCH1089
RESISTORS			
⚠	R1020 (10Ω)		DCN1002
	R518 (68K)		RA11T683J
	R528 (10K)		RA4T103J
	R1701 (22K)		RA5T223J
	R512 (68K)		RA6T683J
	R321, R322 (560Ω)		RCN1024
	R1702 (11K/22K)		RCX1020
	R510 (22K)		RCX1041
	R501 (47K)		RCX1045
	R452		RD1/2LF010J
	R1001		RD1/2LF152J
	R1609 (220Ω)		RS2LMF221J
	R1002 (470Ω)		RS2LMF471J
	VR321, VR322, VR851 (10K)		RCP1045
	VR551, VR552, VR653, VR654 (22K)		RCP1046
	VR802, VR852 (15K)		RCP1090
	VR2002 (5KA)		RCV1089
	OTHER RESISTORS		RD1/6PM□□□J
OTHERS			
	CN1503 CONNECTOR (35P)		52045-3545
	CN202 CONNECTOR		9115B-09
	CN201 CONNECTOR		9115B-14
	CN801 CONNECTOR (12P)		KPE12
	CN851 CONNECTOR (14P)		KPE14
	JA1300 MINI JACK		PKN1005
	JA701 PIN JACK (4P)		RKB-020
	JA2003 HEADPHONE JACK		RKN1002
	JA1301, JA1302 REMOTE CONTROL JACK		RKN1004
	X501 CERAMIC RESONATOR (4.19MHz)		VSS1014

3. PCB PARTS LIST

NOTES:

- Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.
- The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- Parts marked by "⊙" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.
- When ordering resistors, first convert resistance values into code form as shown in the following examples.

Ex.1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J=5%, K=10%).

560 Ω → 56 × 10¹ → 561 ····· RD1/8PM 5 6 1 J
47k Ω → 47 × 10³ → 473 ····· RD1/4PS 4 7 3 J
0.5 Ω → 0R5 ····· RN2H 0 R 5 K
1 Ω → 010 ····· RS1P 0 1 0 K

Ex.2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62k Ω → 562 × 10¹ → 5621 ····· RN1/4PC 5 6 2 1 F

Mark	No.	Description	Part No.
		LIST OF ASSEMBLIES	
		PB. DOLBY UNIT	RWX1085
NSP		MOTHER UNIT	RWM1595
		├ MAIN UNIT	RWZ2837
		├ DISPLAY UNIT	RWZ2838
NSP		├ TRANSFORMER 1 UNIT	RWZ2927
NSP		├ TRANSFORMER 2 UNIT	RWZ2839
NSP		└ LED UNIT	RWZ2931
		PB. DOLBY UNIT	
		SEMICONDUCTORS	
	IC101		CXA1115BP
	IC251		CXA1330S
	Q163, Q164, Q741, Q742		2SC3311A
	Q161, Q162		2SK373
	Q165		DTA114ES
	Q108, Q251		DTC114TS
	Q101-Q106, Q109, Q167, Q256		DTC124ES
	D161-D166, D742, D913		1SS254
		COILS AND FILTERS	
	L101, L102 (L=562J)		RTF1099
	F251, F252		RTF1208
		CAPACITORS	
	C161, C162		CCPUSL100J50
	C107-C110		CEANL100M16
	C111, C112		CEANL101M10
	C251-C254		CEAS010M50
	C269, C281-C284		CEAS100M50
	C291		CEAS101M16
	C285, C286		CEAS330M16
	C141, C142		CEAS470M16
	C117, C118		CEAS4R7M50
	C265, C266, C275		CEASR22M50
	C267, C268, C273, C274		CEASR33M50
	C293, C294		CFTXA103J50
	C261-C264		CFTXA222J50
	C113, C114		CFTXA822J50
	C125, C139		CKCYF473Z50
	C135-C138		CKPUYB101K50
	C105, C106		CKPUYB102K50
	C103, C104		CKPUYB271K50
	C123, C124		CKPUYB391K50
	C121, C122		CKPUYB471K50
	C101, C102, C133, C134		CKPUYB681K50
		RESISTORS	
	VR101-VR104 (22K)		RCP1084
	OTHER RESISTORS		RD1/6PM□□□J
		OTHERS	
	CN2021 CONNECTOR		9115S-09L
	CN2011 CONNECTOR		9115S-14L
		MAIN UNIT	
		SEMICONDUCTORS	
	IC201, IC221, IC701, IC902		BA15218
	IC554, IC1601		BA15218N
	IC351		CXA1198AP
	IC223		LM339
	IC352		MC14051BCP
⚠	IC1003, IC1004		NJM7812FA
⚠	IC1002		NJM78M05FA
	IC510		NJU3715L
	IC501		PD4442A
	IC1701		TC4050BP
	IC651		UPC1297CA
⚠	Q1001		2SA1286
	Q513, Q802, Q808-Q810, Q852, Q858, Q1005, Q1010		2SA1309A
	Q460, Q804, Q854		2SB1238X
	Q456-Q458		2SC1815
	Q454, Q455, Q459, Q1006, Q1007		2SC3311A
	Q807, Q857		2SD1858X
	Q351-Q354, Q701, Q702		2SD2144S
	Q553		2SK246
	Q652		DTA114ES

Mark	No.	Description	Part No.

DISPLAY UNIT

SEMICONDUCTORS

	Q1501	DTA[illegible]S
	D1501-D1509, D1512-D1514	1SS[illegible]

SWITCHES

	S1501-S1504, S1506, S1509-S1525, S1527	RS[illegible]
	S1528-S1530	RSH[illegible]

RESISTORS

	ALL RESISTORS	RD1/4P[illegible]J

OTHERS

	CN1504 CONNECTOR (35P)	96D[illegible]-35F
	V1501 FL INDICATOR TUBE	RA[illegible]22

TRANSFORMER 1 UNIT

TRANSFORMER 1 unit has no service part.

TRANSFORMER 2 UNIT

TRANSFORMER 2 unit has no service part.

LED UNIT

SEMICONDUCTORS

	D3001	SEL5[illegible]0R

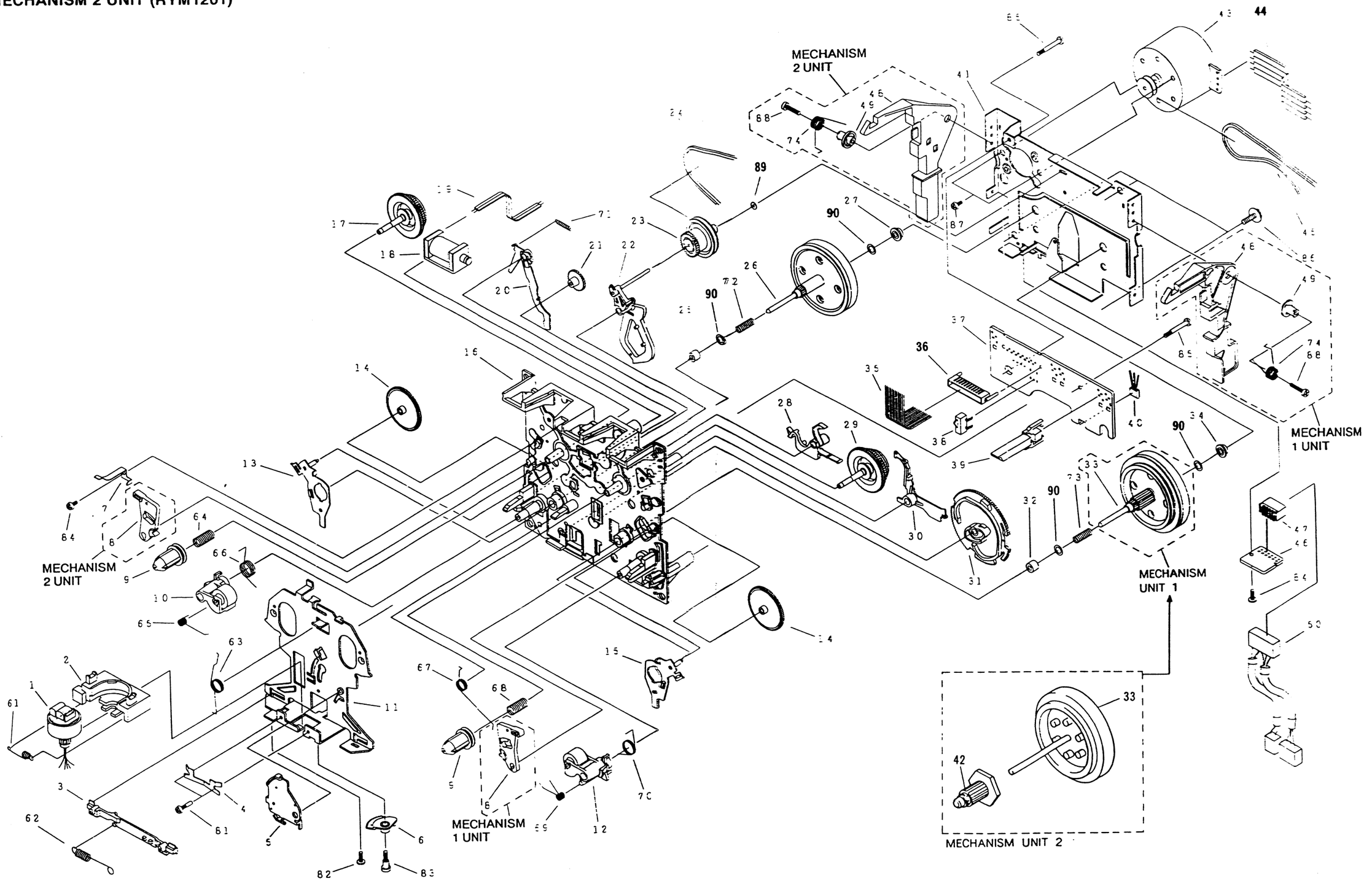
Note for Schematic Diagram (Type 6)

1. When ordering service parts, be sure to refer to "PARTS LIST of EXPLODED VIEWS" or "PCB"

8. SWITCHES (Underline indicates switch position):

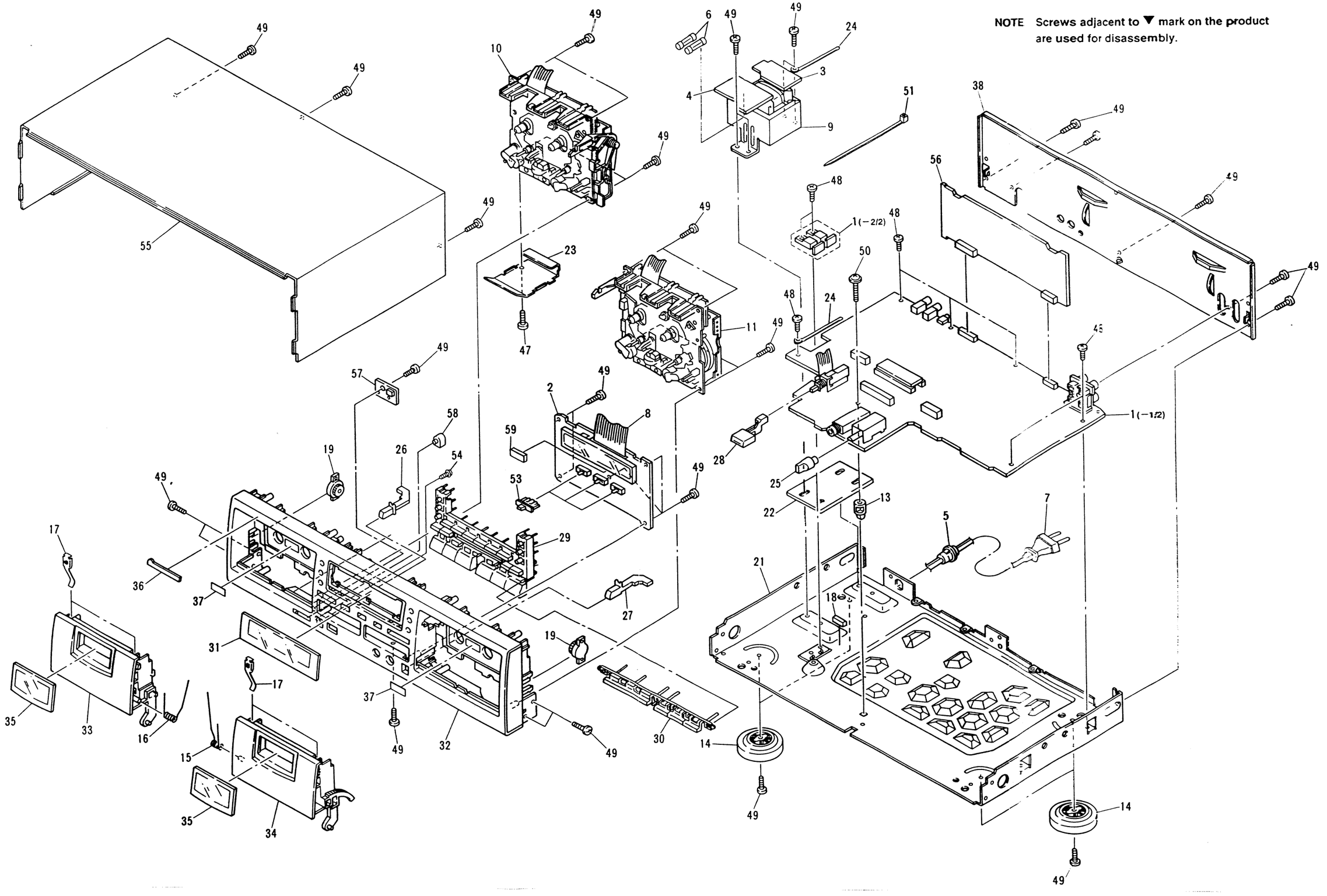
DISPLAY UNIT

1.2 MECHANISM 1 UNIT (RYM1198)
MECHANISM 2 UNIT (RYM1201)



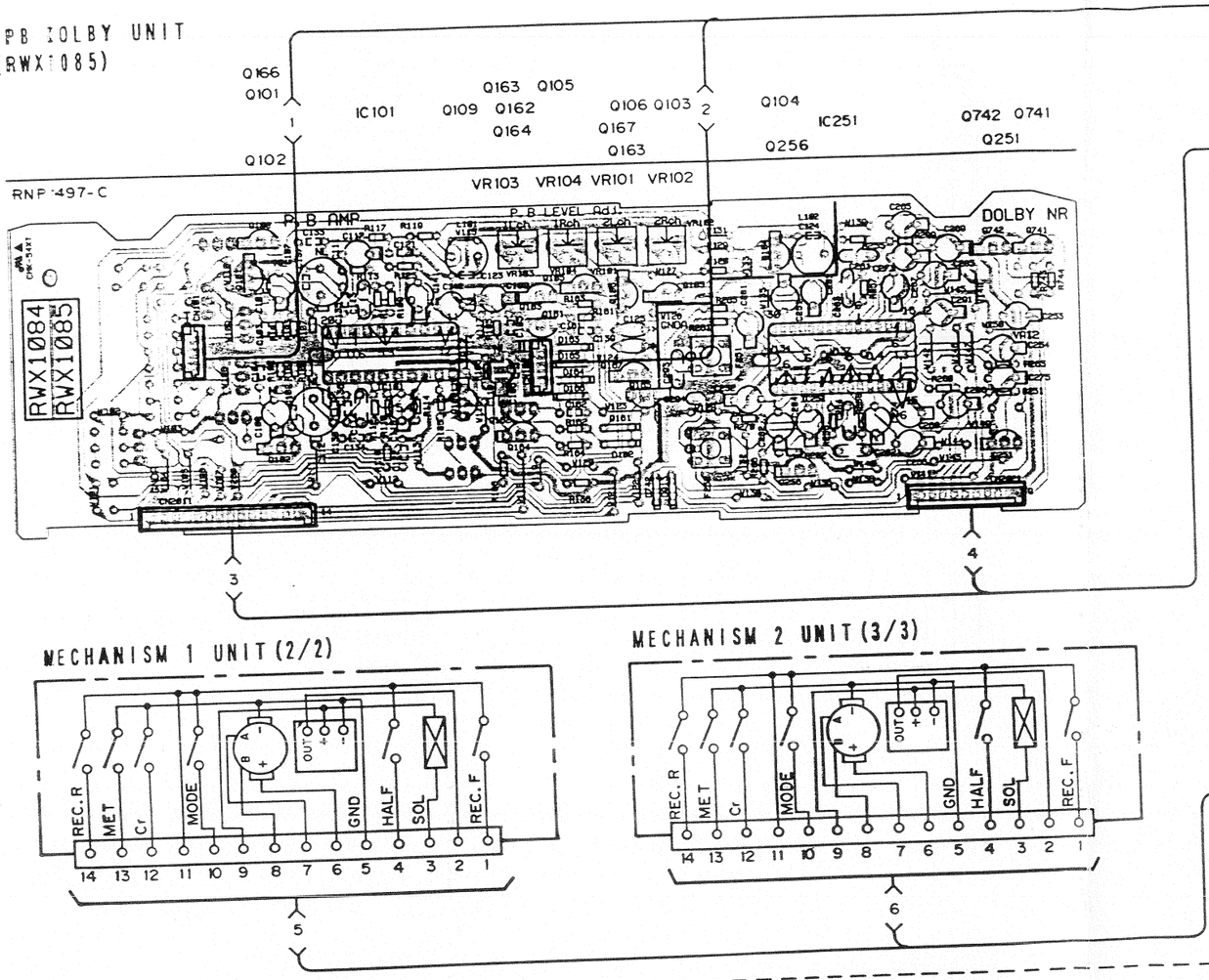
Exterior

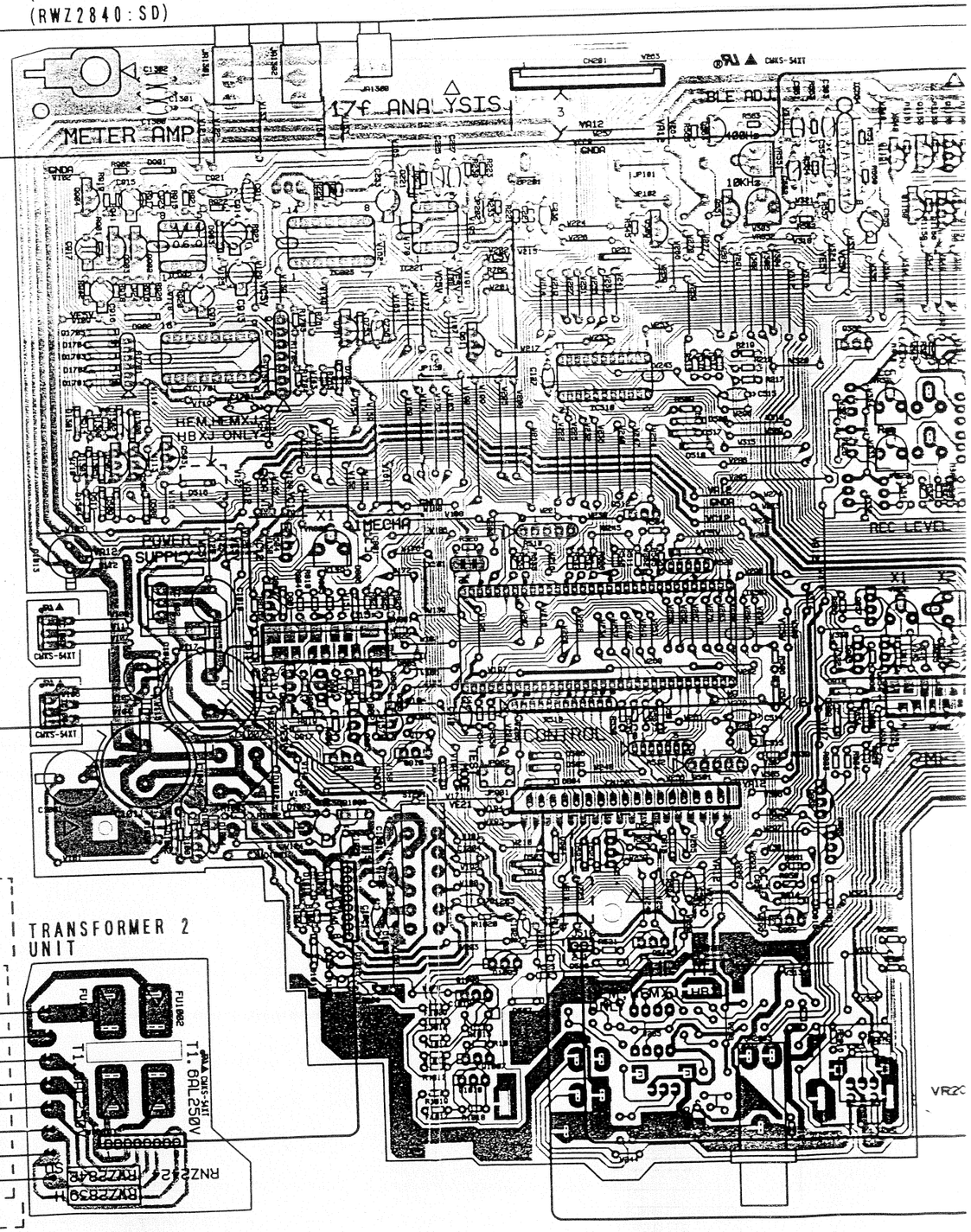
NOTE Screws adjacent to ▼ mark on the product are used for disassembly.

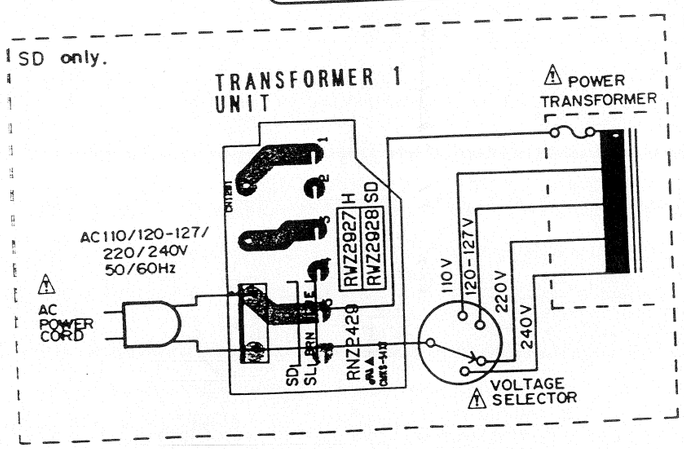


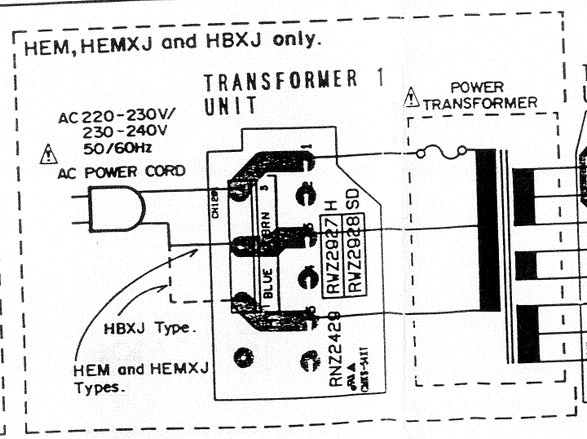
5. PCB CONNECTION DIAGRAM

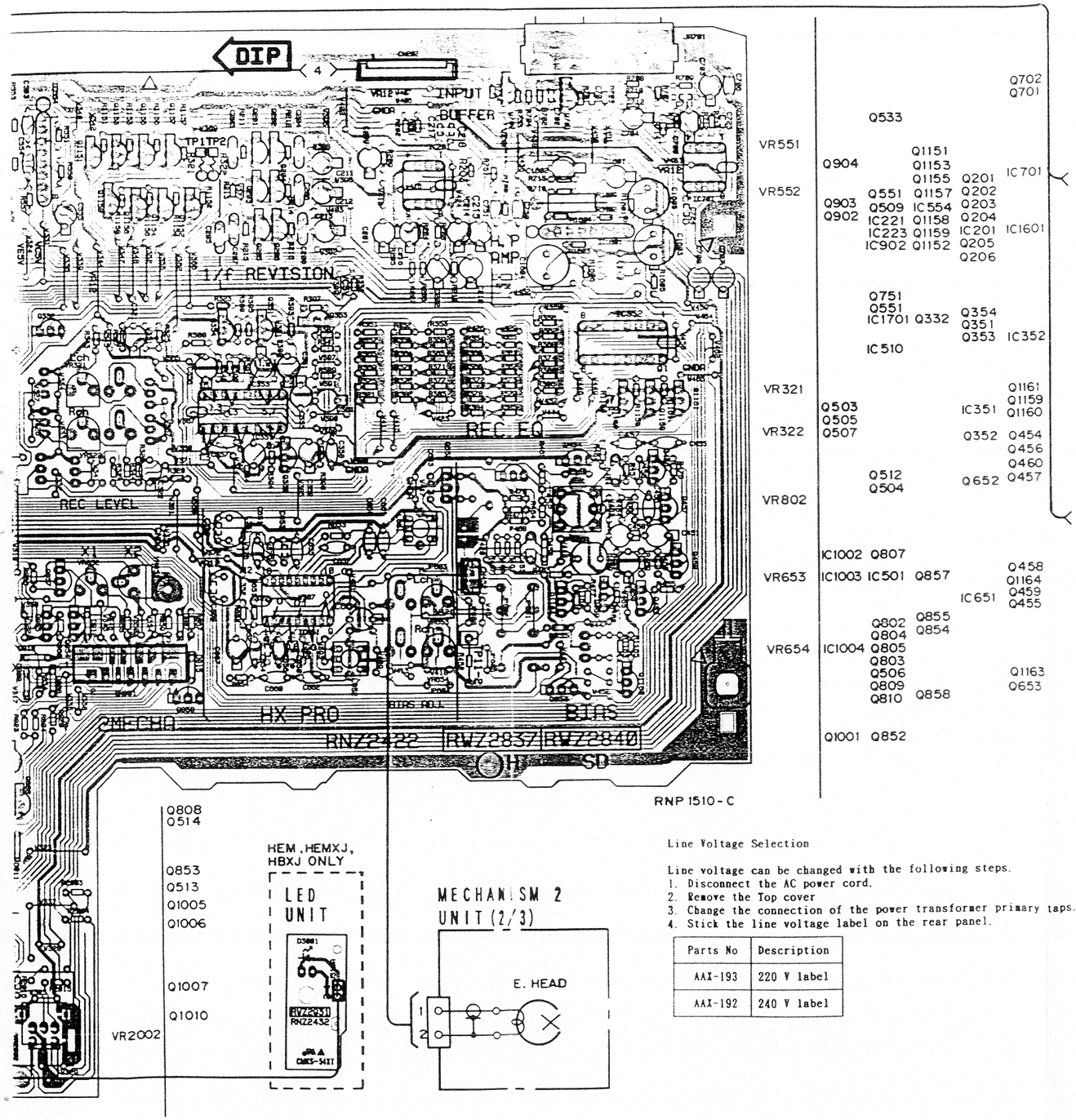
- View from component side









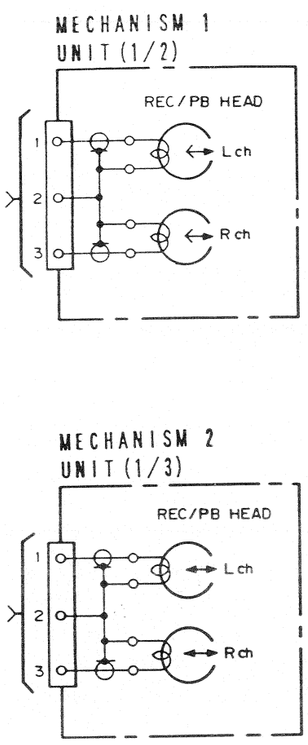


RNP 1510-C

Line Voltage Selection

Line voltage can be changed with the following steps.
1. Disconnect the AC power cord.
2. Remove the Top cover
3. Change the connection of the power transformer primary taps.
4. Stick the line voltage label on the rear panel.

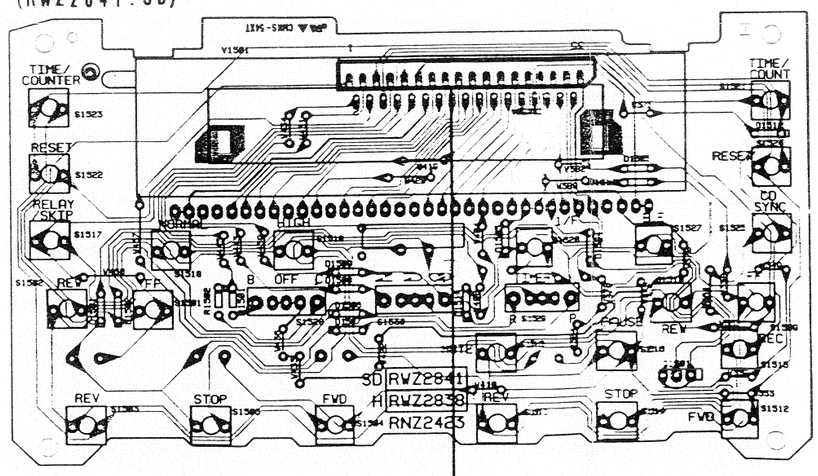
Parts No	Description
AAX-193	220 V label
AAX-192	240 V label



P.C.B. pattern diagram indication	Corresponding part symbol	Part name	P.C.B. pattern diagram indication	Corresponding part symbol	Part name
		Transistor			Ceramic capacitor
		FET			Mylar capacitor
					Styrol capacitor
		Diode			Electrolytic capacitor (Non polarized)
					Electrolytic capacitor (Noiseless)
		Zenner diode			Electrolytic capacitor (Polarized)
					Electrolytic capacitor (Polarized)
		LED			Power capacitor
		Varactor			Semi-fixed resistor
		Fact switch			Resistor array
					Resistor
		Inductor			
		Coil			Resonator
		Transformer			Thermistor
		Filter			

1. This P.C.B. connection diagram is viewed from the parts mounted side.
2. The parts which have been mounted on the board can be replaced with those shown with the corresponding wiring symbols listed in the above Table.
3. The capacitor terminal marked with ▭ shows negative terminal.
4. The diode marked with ○ shows cathode side.
5. The transistor terminal marked with ▭ shows emitter.

DISPLAY UNIT
(RWZ2838: HEM, HEMXJ, HBXJ)
(RWZ2841: SD)



6. ADJUSTMENTS

6.1 MECHANICAL ADJUSTMENT

6.1.1 Door Damping Check and Adjustment

Set the door spring of the DECK I side to position (A) as shown in Fig. 6-1 Then, erect the front panel assembly vertically.
Open the doors of DECK I and DECK II at the same time. At this point, confirm that the difference between the door completely opened and the other door is within 15mm. If this standard is not satisfied install the door spring of DECK I at another position and adjust as follows:

- When the door of DECK I opens later than that of DECK II : Change the door spring of DECK II from A to B.
- When the door of DECK I opens faster than that of DECK II : Change the door spring of DECK I from A to B.

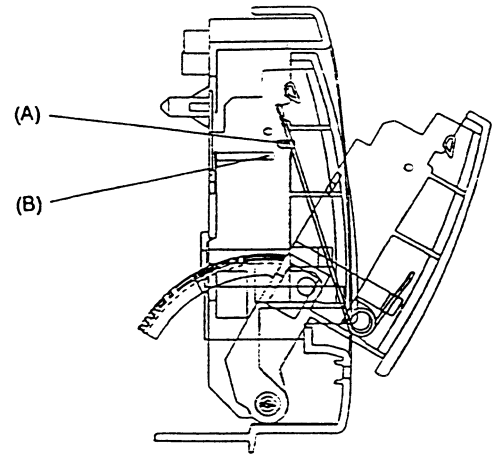


Fig. 6–1

6.1.2 Tape Speed

- Perform this adjustment in the test mode.
- TEST mode setting.

1. Set the REV MODE to " ⇄ ".
2. Short-circuit the JP901 and JP902 for a moment. (Set into TEST mode.)
3. The speed becomes normal when the PLAY key is pressed, and double when the FF key is pressed.
4. To cancel the TEST mode, press the DECK I COUNTER RESET key or turn off the power.

1. Tape Speed Adjustment and Check

No.	Deck	Mode	Test tape	Adjusting points	Specifications/Ratings (playback frequency)	Remarks
1	I	Double speed PLAY	STD-301 (3 kHz)	check	6000 Hz ± 600 Hz	
2	II			VR851	Within ± 10 Hz against the measurement value of the step 1 (deck I)	
3	I	NORMAL speed PLAY		VR8C2	3000 Hz ± 5 Hz	
4	II			VR852	Within ± 5 Hz against the measurement value of the step 3 (deck I)	

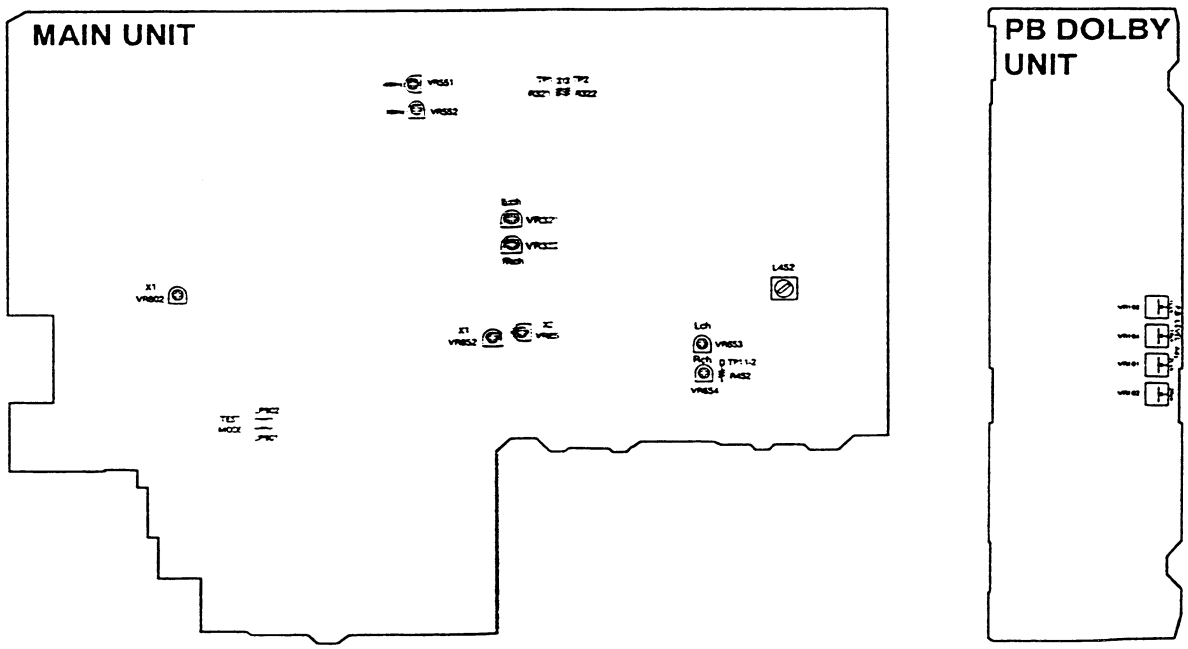


Fig. 6–2 Adjusting points

6.2 ELECTRICAL ADJUSTMENTS

Adjustment Conditions

1. The mechanical adjustments must be completed first.
2. The head must be cleaned and demagnetized.
3. Turn power on allow the deck to warm up for at least a few minutes before commencing any electrical adjustments.
4. The reference signal is 0 dBV=1 Vrms.
5. Connect a 50 kΩ (or between 47k to 52 kΩ) load resistance to the OUTPUT terminals.
6. Unless otherwise specified, the switches listed below are left in the positions indicated.
   DOLBY NR : OFF
   TAPE SELECTOR : NORM

Test Tapes

STD–331E : Playback adjustments (See Fig. 6–3)
STD–631 : NORMAL blank tape (TYPE I)
STD–621 : CrO2 blank tape (TYPE II)
STD–610 : METAL blank tape (TYPE IV)

* As the reference recording level is 250 nwb/m for STD–331E, the recording level will be higher by 4 dB for STD–331B (160 nwb/m). When adjusting, pay carefull attention to the type of tape used.

List of Adjustments

Playback sections

1. Head azimuth adjustment.
2. Playback level adjustment.

Recording sections

1. Bias oscillator adjustment.
2. Recording bias adjustment.
3. Recording level adjustment.
4. Level meter check.
5. AUTO BLE adjustment.

NOTE: This unit has an automatic tape selection feature.

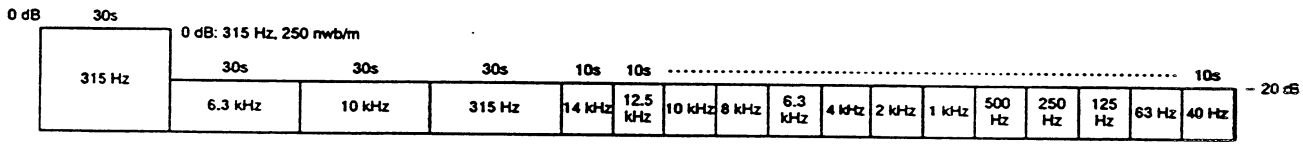


Fig. 6–3 Constants of the test tape STD–331E

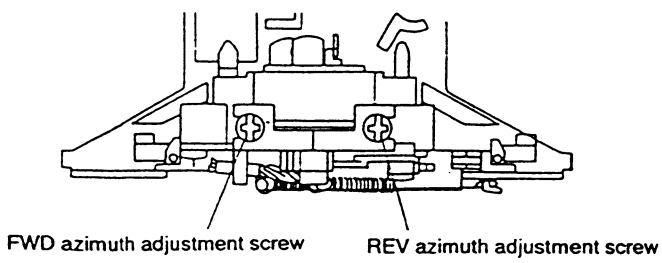


Fig. 6–4 Head azimuth adjustment

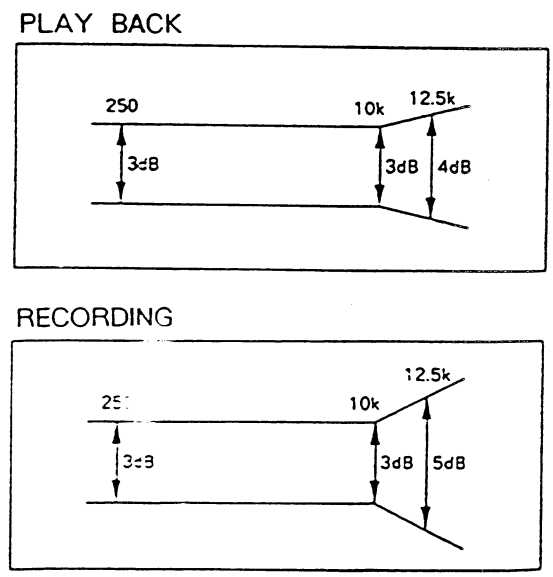


Fig. 6–5 Frequency response zone

PLAYBACK SECTION

1. Head Azimuth Adjustment

- Turn VR103, 104 (Deck I) or VR101, 102 (Deck II) to mechanical center positions.

No.	Mode	Input signal & test tape	Adjustment location	Measuring location	Adjustment value	Remarks
1.	PLAY	Play the 10 kHz/–20 dB section of STD–331E test tape.	Head azimuth adjustment screw. (See Fig. 6–4)	LINE OUT	Maximum playback signal level.	
2.	STOP	Lock the screw with screw lock after completing adjustment.				

2. Playback Level Adjustment

- This adjustment determines the DOLBY NR level, and must be performed with great care.

No.	Mode	Input signal & test tape	Adjustment location		Measuring location	Adjustment value	Remarks
1.	PLAY	Play the 315 Hz/0 dB section of the STD–331E test tape.	Deck I	VR 103 (Lch) VR 104 (Rch)	TP. 1 (Lch) TP. 2 (Rch)	–6.7 dBV	
			Deck II	VR 101 (Lch) VR 102 (Rch)			

RECORDING SECTION

1. Bias Oscillator Adjustment

No.	Mode	Input signal & test tape	Adjustment location		Measuring location	Adjustment value	Remarks
1.	REC	Load the STD–610 test tape with no input signal.	Deck II	L 452	TP. 11 – 2	105 kHz ± 0.3kHz	If the adjustment value on the left cannot be obtained values within 105kHz $\pm^{0.4}_{0.3}$ kHz are also satisfactory.

2. Recording Bias Adjustment

- After the adjustment, caution should be exercised so as not to become under bias by checking the distortion rate.

No.	Mode	Input signal & test tape	Adjustment location		Measuring location	Adjustment value	Remarks
1.	REC	Record the 315 Hz and 6.3 kHz signals at –20 dB input level and playback. (STD-631)	Deck II	VR653(Lch) VR654(Rch)	LINE OUT	Repeatedly record, playback and adjust so that the playback level of 6.3 kHz signal becomes 0.5 dB ± 0.5 dB when compared with the 315 Hz signal.	

3. Recording Level Adjustment

No.	Mode	Input signal & test tape	Adjustment location		Measuring location	Adjustment value	Remarks
1.	REC PAUSE	Apply a 315 Hz/0 dBV signal to the line input terminals, load the STD-631 test tape.	REC level control volume		TP. 1 (Lch) TP. 2 (Rch)	-11.2 dBV	
2.	STOP	Set the DOLBY NR switch to the ON position.					
3.	REC/ PLAY	Record the above signal onto the STD-631 test tape, and playback.	Deck II	VR32: (Lch) VR32: (Rch)	TP. 1 (Lch) TP. 2 (Rch)	Repeatedly record, playback and adjust so that the playback signal level becomes - 11.2 dBV.	
4.	REC/ PLAY	Record the above signal onto the STD-621 test tape, and playback.	Check		TP. 1 (Lch) TP. 2 (Rch)	-11.2 dBV ± 1.5dB	
5.	REC/ PLAY	Record the above signal onto the STD-610 test tape, and playback.	Check		TP. 1 (Lch) TP. 2 (Rch)	-11.2 dBV ± 1.5dB	

4. Level Meter Check

No.	Mode	Input signal & test tape	Adjustment location	Measuring location	Adjustment value	Remarks
1.	REC PAUSE	Apply a 315 Hz/-10 dBV (316 mV) signal to the Line Input terminals.	REC level control volume	TP. 1 (Lch) TP. 2 (Rch)	Check that the level meters "0 dB" light up within -7.2 dBV ± 2 dB of the signal output level.	

5. AUTO BLE Adjustment

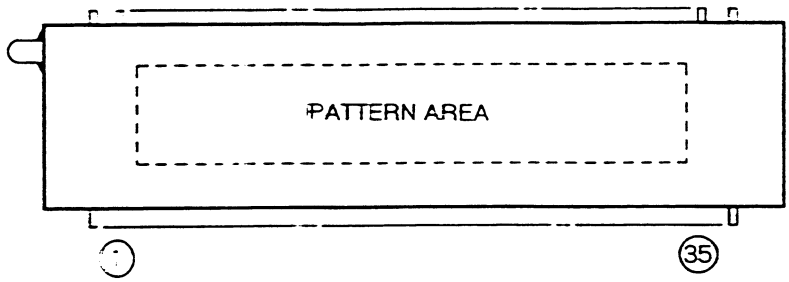
- BLE adjustment should be performed after all other adjustments are completed.
- This adjustment should be performed in the test mode.
- Entering the test mode.
  For details of how to enter the test mode, refer to the "Mechanical Adjustment" section (Page 23)

No.	Mode	Input signal & test tape	Adjustment location	Measuring location	Adjustment value	Remarks
1.	-	Set to test mode.	-	-	-	
2.		Press the BLE SW key on the front panel.	Level meter	VR551	Adjust so that - 3 dB on the level meter turn on and off.	400 Hz adjustment
3.		Press the BLE SW key on the front panel again.		VR552		10 kHz adjustment

Reference: The output of LINE OUT after completing the adjustments for 400 Hz, 10 kHz becomes - 26 dBV ± 1dB.

7. FL INFORMATION

● RAW1122 (V1501)

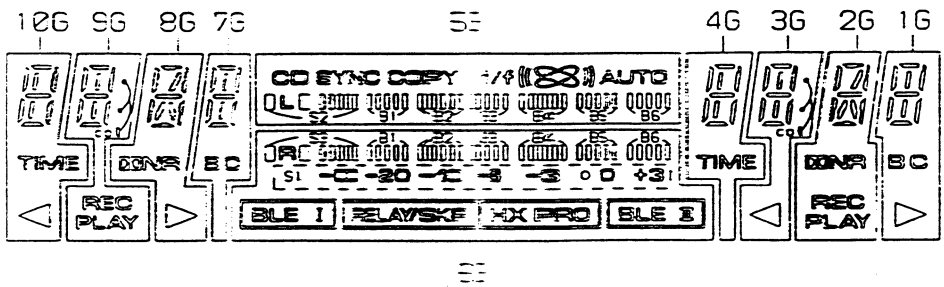


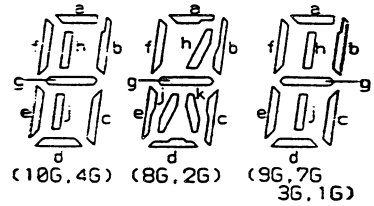
PIN CONNECTION

PIN NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
CONNECTION	F1	NP	NC	10G	9G	8G	7G	6G	5G	NC	4G	3G	2G	1G	NC	NC	NP	NP	NP	NP	NP	NC	NP	NP	NP	NP	NP	NP	NP	NC	NC	NP	F1	F2	F2

NOTE 1) F1,F2 --- Filament 3) NC ------ No connection
2) NP ------ No pin 4) 1G~10G --- Grid

GRID ASSIGNMENT





ANODE CONNECTION

	10G	9G	8G	7G	6G	5G	4G	3G	2G	1G
P1	a	a	a	a	E	E	a	a	a	a
P2	b	b	b	b	E	E	b	b	b	b
P3	f	f	f	f	E	E	f	f	f	f
P4	g	g	g	g	E	E	g	g	g	g
P5	c	c	c	c	E	E	c	c	c	c
P6	e	e	e	e	E	E	e	e	e	e
P7	d	d	d	d	BLE	CD SYNC	d	d	d	d
P8	h,j	h,j	h,j	h,j	REC	COPY	h,j	h,j	h,j	h,j
P9	-	col	k	-	BLE I	AUTO	-	col	k	-
P12	◁	PLAY	▷	-	PLAYSKIP	PRO	-	◁	PLAY	▷
P11	-	REC	-	E	E	1/4	-	-	REC	E
P10	TIME	-	DNR	E	E	E	TIME	-	DNR	E

8. FOR HEMXJ, HBXJ AND SD TYPES

NOTES:
- Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.
- The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- Parts marked by "⊙" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.

HEMXJ, HBXJ, SD and HEM have the same construction except for the following:

Mark	Symbol & Description	Part No.				Remarks
		HEM type	HEMXJ type	HBXJ type	SD type	
NSP	Mother unit	RWM1595	RWM1595	RWM1595	RWM1596	
	Main unit	RWZ2837	RWZ2837	RWZ2837	RWZ2840	
	Display unit	RWZ2838	RWZ2838	RWZ2838	RWZ2841	
NSP	Transformer 1 unit	RWZ2927	RWZ2927	RWZ2927	RWZ2928	
NSP	Transformer 2 unit	RWZ2839	RWZ2839	RWZ2839	RWZ2842	
NSP	LED unit	RWZ2931	RWZ2931	RWZ2931	------	
⚠	AC power cord	PDG1003	PDG1003	VDG1051	PDG1013	
⚠	Power transformer (AC220 – 230/230 – 240V)	RTT1224	RTT1224	RTT1224	------	
⚠	Power transformer (AC110/120 – 127/220/240V)	------	------	------	RTT1225	
⚠	Line voltage selector (AC110/120 – 127/220/240V)	------	------	------	PSB1002	For rear panel
⊙	Mechanism 2 unit (DECK II)	RYM1201	RYM1201	RYM1201	RYM1199	
	BS pin cap	------	------	VEC1616	------	Note 1
	LED lens	PNW2019	PNW2019	PNW2019	------	
	FL lens	RAH2186	RAH2186	RAH2186	RAH2217	
	Front panel	RAH2180	RAH2180	RAH2180	RAH2225	
NSP	Rear panel	RNA1659	RNA1668	RNA1669	RNA1661	
NSP	Main chassis	RNB1089	RNB1091	RNB1091	RNB1089	
	Packing case	RHG1431	RHG1439	RHG1440	RHG1429	
	Sheet	RHX – 034	Z23 – 007	Z23 – 007	RHX – 034	Note 2
	Spacer A	------	------	RHC1032	------	Note 3
	Spacer B	------	------	RHC1033	------	Note 3
	Operating instructions (English/French/German/Italian/ Dutch/Swedish/Spanish/Portuguese)	RRE1075	RRE1072	------	------	
	Operating instructions (English)	------	------	RRB1127	RRB1129	
	Operating instructions (Spanish)	------	------	------	RRD1134	

Note 1: Refer to Fig 1.
Note 2: For HEMXJ and HBXJ types, the parts name is mirror mat sheet.
Note 3: Refer to page 2.

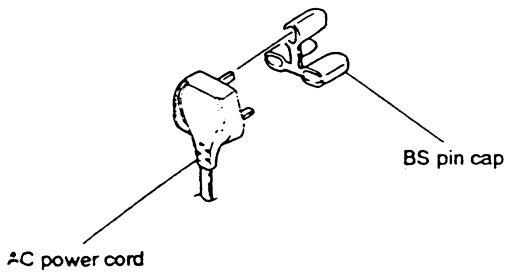


Fig 1.

MAIN UNIT

RWZ2840 and RWZ2837 have the same construction except for the following:

Mark	Symbol & Description	Part No.		Remarks
		RWZ2837	RWZ2840	
	Q513	2SA1309A	.....	
	Q514	DTC124ES	.....	
	D516, D523 – D526	1SS254	.....	
	R520	RD1/6PM103J	.....	
	R521	RD1/6PM330J	.....	
	R1002	RS2LMF471J	RS2LMF681J	

DISPLAY UNIT

Although RWZ2841 and RWZ2838 are different in part number, they consist of the same components.

TRANSFORMER 1 UNIT

Although RWZ2928 and RWZ2927 are different in part number, they consist of the same components.

TRANSFORMER 2 UNIT

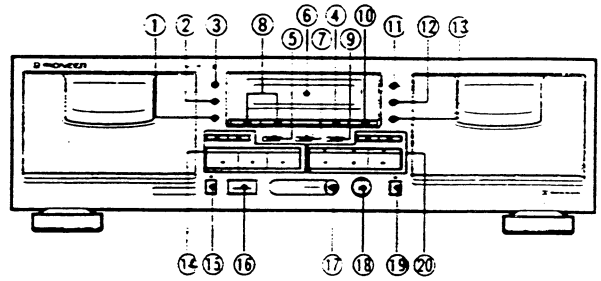
Although RWZ2842 and RWZ2839 are different in part number, they consist of the same components.

MECHANISM 2 UNIT

RYM1199 and RYM1201 have the same construction except for the following:

Mark	Symbol & Description	Part No.		Remarks
		RYM1201	RYM1199	
	BELT MAIN	REB1162	REB1159	
	GEAR FW R	RNK1733	.....	
	FLYWHEEL R	RXA1415	.....	
	ASS'Y FLYWHEEL R	.....	RXA1424	
	ASS'Y FLYWHEEL L	RXA1476	RXA1423	
	ASS'Y MOTOR	RXM1061	RXM1060	

9. PANEL FACILITIES



① RELAY/SKIP button
② **DECK I counter reset button (RESET)**
③ **DECK I counter mode button (TIME/COUNT)**
④ **FLEX (1/f) button**
⑤ **Dolby* NR switch (B/OFF/C)**

*
- *Dolby noise reduction and HX Pro headroom extension manufactured under license from Dolby Laboratories Licensing Corporation. HX Pro originated by Bang & Olufsen.*
- *"DOLBY", the double-D symbol DD and "HX PRO" are trademarks of Dolby Laboratories Licensing Corporation.*

⑥ **Function display**
⑦ **Reverse mode switch (REV MODE)**
Both DECK I and II
⑧ **Synchro copy buttons (SYNCHRO COPY I▶II)**
NORMAL : Normal speed copy
HIGH : Twice the normal speed copy
⑨ **TIMER mode switch (REC/OFF/PLAY)**
⑩ **DECK II BLE button**
⑪ **DECK II counter mode button (TIME/COUNT)**
⑫ **DECK II counter reset button (RESET)**
⑬ **CD · DECK SYNCHRO recording button (CD SYNC)**
⑭ **Deck I operation buttons**
◀ : Reverse playback
▶ : Forward playback
◀◀/MS : Fast reverse/music search
■ : Stop
▶▶/MS : Fast forward/music search

⑮ **DECK I eject button (⏏)**
- If the tape is moving (recording, playback, tape winding, etc.), press the stop (■) button before pressing this button.

NOTE:
If the power is turned off while the tape is moving, the cassette door may remain locked. In this case, turn the power on before pressing the eject (⏏) button.

⑯ **POWER STANDBY/ON switch**
The POWER switch activates the secondary transformer only. Even when the switch is in the STANDBY position, there will be a power flow to the deck's circuits as long as the power cord is connected to a power outlet.
⑰ **Headphones jack (PHONES)**
⑱ **Recording level control (REC LEVEL)**
⑲ **DECK II eject button (⏏)**
- If the tape is moving (recording, playback, tape winding, etc.), press the stop (■) button before pressing this button.

NOTE:
If the power is turned off while the tape is moving, the cassette door may remain locked. In this case, turn the power on before pressing the eject (⏏) button.

⑳ **DECK II operation buttons**
◀ : Reverse playback
▶ : Forward playback
◀◀/MS : Fast reverse/music search
■ : Stop
▶▶/MS : Fast forward/music search
O : Recording mute
II : Pause
● : Recording

10. SPECIFICATIONS

System ..... 4-track, 2-channel stereo
Heads ..... "Hard Permalloy" recording/playback head × 1
"Hard Permalloy" playback head × 1
"Ferrite" erasing head × 1
Motor ..... DC servo motor × 2
Wow and Flutter ..... 0.09% (WRMS) ±0.19% (DIN)
Fast Winding Time ..... Approximately 120 seconds (C-60 tape)
Frequency Response
−20 dB recording:
TYPE IV (Metal) tape ..... 25 to 16,500 Hz
TYPE II (High/CrO_2) tape ..... 25 to 16,000 Hz
TYPE I (Normal) tape ..... 25 to 16,000 Hz
Signal-to-Noise Ratio
Dolby NR OFF ..... More than 57 dB
Noise Reduction Effect
Dolby B-type NR ON ..... More than 10 dB (at 5 kHz)
Dolby C-type NR ON ..... More than 19 dB (at 5 kHz)
Harmonic Distortion ..... No more than 0.8%
(at −4 dB: 160 nwb/m)
Input (Sensitivity)
LINE (INPUT) ..... 100 mV (Input impedance 68 kΩ)
Output (Reference level)
LINE (OUTPUT) ..... 0.5 V (Output impedance 3.2 kΩ)
Headphones ..... 0.63 mW (Load impedance 8 Ω)

Subfunctions

- AUTO BLE tuning system
- Automatic reverse
- DOLBY HX PRO recording function
- DOLBY B/C type NR
- Music search over ±15 selections
- Synchronized copy start
- High-speed and normal-speed copy (Deck I — Deck II)
- Relay playback/blank skip
- CD - DECK SYNCHRO recording capability
- Peak level meter with peak-hold function
- Automatic space recording mute
- Automatic tape selector
- SR System remote control available
- TIMER Recording
- TIMER Playback (Automatic relay on)
- 2-mode electronic 4-digit twin tape counter
- Headphone jack
- FLEX system

Miscellaneous

Power Requirements ..... AC 220–230 volts, 50/60 Hz
Power Consumption
CT-W620R ..... 19 W
Dimensions ..... 420 (W) × 125 (H) × 250 (D) mm
Weight (without package)
CT-W620R ..... 2.3 kg

Accessories

Operating instructions 1
Connection cord with pin plugs 2
Remote control cord 1
CD - DECK SYNCHRO control cord 1

NOTE:
Specifications and design subject to possible modifications without notice, due to improvements.

POWER-CORD CAUTION

Handle the power cord by the plug. Do not pull out the plug by tugging the cord and never touch the power cord when your hands are wet as this could cause a short circuit or electric shock. Do not place the unit, a piece of furniture, etc., on the power cord, or pinch the cord. Never make a knot in the cord or tie it with other cords. The power cords should be routed in such a way that they are not likely to be stepped on. A damaged power cord can cause fire or give you an electrical shock. Check the power cord regularly. When you find it damaged, ask your nearest PIONEER authorized service center or your dealer for a replacement.